

**What is claimed:**

1    1. A real time communication device for operation with a packet switched  
2 network interconnecting the real time communication device with a control unit and  
3 at least one other real time communication devices, the real time communication  
4 device comprising:

5                 a network interface for communicating over the packet switched local area  
6 network;

7                 means for establishing a logical channel to support a media session over the  
8 packet switched local area network with an endpoint selected from the group of  
9 endpoints consisting of the control unit and the other real time communication  
10 devices, for the exchange of real time streaming media with the endpoint during a  
11 media session;

12                means for receiving microphone input and generating compressed digital  
13 audio frames representative thereof for transmission to the endpoint during the  
14 media session and for receiving compressed digital audio frames from the endpoint  
15 and driving a speaker to output audio in response thereto;

16                means for providing a notice message to at least one subscription device  
17 selected from the group of subscription devices consisting of the control unit and a  
18 the other real time communication devices, the notice message indicating a change  
19 in state between a first state wherein the real time communication device is "off-  
20 hook" participating in a media session and a second state wherein the real time  
21 communication device is not participating in a media session.

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1    2. The real time communication device of claim 1, wherein the means for  
2 providing a notice message comprises:

3                 means for receiving a subscription message from a notice client of each  
4 subscription device over the local area network, each subscription message  
5 comprising identification of the notice client; and

6                 means for providing a notice message, in response to a change in state  
7 between the first state and the second state, to each subscription device, the notice

8 message comprising the identification in a notice message destination field.  
9  
1 3. The real time communication device of claim 2, wherein the identification is a  
2 IP address and port number associated with the notice client.  
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1 4. The real time communication device of claim 2, wherein the identification  
2 comprises an identifier associated with the notice client useable by a proxy server  
3 for routing the subscription message to the real time communication device.  
4  
1 5. The real time communication device of claim 1, wherein the means for  
2 providing a notice message further comprises:  
3       means for receiving a subscription message from a notice client of each  
4 subscription device over the local area network, each subscription message  
5 comprising identification of the notice client;  
6       a subscription table for storing the identification of each subscription device  
7 in association with a subscription expiration time; and  
8       means for providing a notice message, in response to a change in state  
9 between the first state and the second state, only to each of those subscription  
10 devices associated with a subscription expiration time that follows the change in  
11 state, and the notice message comprising the identification in a notice message  
12 destination field.  
13  
1 6. The real time communication device of claim 5, wherein the identification is a  
2 IP address and port number associated with the notice client.  
3  
1 7. The real time communication device of claims 5, wherein the identification  
2 comprises an identifier associated with the notice client and useable by a proxy  
3 server for routing the subscription message to the real time communication device.  
4  
5  
1 8. The real time communication device of claim 1, wherein the means for

2 providing a notice message comprises:

3       means for receiving a subscription message from a notice client of each  
4 subscription device over the local area network, each subscription message  
5 comprising identification of the notice client;

6       means for providing a first notice message to a subscription device, in  
7 response to receipt of the subscription message from the subscription device, the  
8 first notice indicating whether the real time communication device is in the first state  
9 or the second state; and

10      means for providing a plurality of subsequent notice messages to the  
11 subscription device, each subsequent notice message in response to a change in  
12 state between the first state and the second state.

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1     9.   The real time communication device of claim 8, wherein the identification is a  
2 IP address and port number associated with the notice client.

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1     10.   The real time communication device of claims 8, wherein the identification  
2 comprises an identifier associated with the notice client and useable by a proxy  
3 server for routing the subscription message to the real time communication device.

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1     11.   The real time communication device of claims 1, wherein the means for  
2 providing a notice message further comprises:

3       means for receiving a subscription message from a notice client of each  
4 subscription device over the local area network, each subscription message  
5 comprising identification of the notice client;

6       a subscription table for storing the identification of each subscription device  
7 in association with a subscription expiration time; and

8       means for providing a first notice message to a subscription device, in  
9 response to receipt of the subscription message from the subscription device, the  
10 first notice indicating whether the real time communication device is in the first state  
11 or the second state; and

12 means for providing a plurality of subsequent notice messages to the  
13 subscription device, each subsequent notice message in response to a change in  
14 state between the first state and the second state that occurs prior to the  
15 subscription expiration time.

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1 12. The real time communication device of claim 11, wherein the identification is  
2 a IP address and port number associated with the notice client.

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1 13. The real time communication device of claims 11, wherein the identification  
2 comprises an identifier associated with the notice client and useable by a proxy  
3 server for routing the subscription message to the real time communication device.

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1 14. A method for providing notice of a state of a real time communication device  
2 to other real time communication devices over a packet switched local area  
3 network, the method comprising:

4 receiving a subscription message from at least one subscription device  
5 selected from the group of subscription device consisting of the control unit and the  
6 other real time communication devices, over the local area network, each  
7 subscription message comprising identification of the subscription device;

8 providing a notice message to each subscription device, the notice message  
9 indicating a change in state between a first state wherein the real time  
10 communication device is "off-hook" participating in a media session over the local  
11 area network with a second endpoint consisting of an endpoint selected from the  
12 group of the control unit and the other real time communication devices, and a  
13 second state wherein the real time communication device is "on-hook".

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1 15. The method of claim 14, wherein:

2 the identification comprises an indication of an IP address and a port number  
3 of the subscription device; and

4 the step of providing the notice message comprises sending the notice

5 message over the local area network to the IP address and port number.

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1 16. The method of claim 14, wherein:

2 the identification comprises an identifier of the subscription device; and

3 the step of providing the notice message comprises sending the notice

4 message over the local are network to a proxy server that may use the identifier for

5 routing the notice message to the subscription device.

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1 17. A method for providing notice of a state of a real time communication device

2 to other real time communication devices over a packet switched local area

3 network, the method comprising:

4 receiving a subscription message from at least one subscription device

5 selected from the group of subscription device consisting of the control unit and the

6 other real time communication devices, over the local area network, each

7 subscription message comprising identification of the subscription device;

8 storing the identification of each subscription device in association with a

9 subscription expiration time;

10 providing a notice message that indicates a change in state between a first

11 state wherein the real time communication device is "off-hook" participating in a

12 media session over the local area network with a second endpoint consisting of an

13 endpoint selected from the group of the control unit and the other real time

14 communication devices, and a second state wherein the real time communication

15 device is not participating in a media session, only to each subscription device that

16 associates with a subscription expiration time that follows the change in state.

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1 18. The method of claim 17, wherein:

2 the identification comprises an indication of an IP address and a port number

3 of the subscription device; and

4 the step of providing the notice message comprises sending the notice

5 message over the local area network to the IP address and port number.

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1       19. The method of claim 17, wherein:  
2              the identification comprises an identifier of the subscription device; and  
3              the step of providing the notice message comprises sending the notice  
4              message over the local area network to a proxy server that may use the identifier for  
5              routing the notice message to the subscription device.

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1       20. A method for providing notice of a state of a real time communication device  
2              to other real time communication devices over a packet switched local area  
3              network, the method comprising:

4              receiving a subscription message from at least one subscription device  
5              selected from the group of subscription device consisting of the control unit and the  
6              other real time communication devices, over the local area network, each  
7              subscription message comprising identification of the subscription device;

8              providing a first notice message to a subscription device, in response to  
9              receipt of the subscription message from the subscription device, the first notice  
10             message indicating whether the real time communication device is in a first state  
11             wherein the real time communication device is "off-hook" participating in a media  
12             session over the local area network with a second endpoint consisting of an  
13             endpoint selected from the group of the control unit and the other real time  
14             communication devices, and a second state wherein the real time communication  
15             device is not participating in a media session;

16             means for providing a plurality of subsequent notice messages to the  
17             subscription device, each subsequent notice message in response to a change in  
18             state between the first state and the second state.

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1       21. The method of claim 20, wherein:

2              the identification comprises an indication of an IP address and a port number  
3              of the subscription device for receipt of the notice message, and

4              the step of providing the first notice message and the step of providing  
5              subsequent notice messages each comprise sending the notice message over the  
6              local area network to the IP address and port number.

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1 22. The method of claim 20, wherein:  
2 the identification comprises an identifier of the subscription device; and  
3 the step of providing the first notice message and the step of providing the  
4 subsequent notice messages each comprise sending the notice message to a  
5 proxy server that may use the identifier for routing the notice message to the  
6 subscription device.

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1 23. A method for providing notice of a state of a real time communication device  
2 to other real time communication devices over a packet switched local area  
3 network, the method comprising:

4 receiving a subscription message from at least one subscription device  
5 selected from the group of subscription device consisting of the control unit and the  
6 other real time communication devices, over the local area network, each  
7 subscription message comprising identification of the subscription device;

8 storing the identification of each subscription device in associate with a  
9 subscription expiration time;

10 providing a first notice message to a subscription device, in response to  
11 receipt of the subscription message from the subscription device, the first notice  
12 message indicating whether the real time communication device is in a first state  
13 wherein the real time communication device is "off-hook" participating in a media  
14 session over the local area network with a second endpoint consisting of an  
15 endpoint selected from the group of the control unit and the other real time  
16 communication devices, and a second state wherein the real time communication  
17 device is not participating in a media session;

18 providing a plurality of subsequent notice messages to the subscription  
19 device, each subsequent notice message in response to a change in state between  
20 the first state and the second state that occurs prior to the subscription expiration  
21 time.

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1 24. The method of claim 23, wherein:

2           the identification comprises an indication of an IP address and a port number  
3       of the subscription device for receipt of the notice message, and  
4           the step of providing the first notice message and the step of providing  
5       subsequent notice messages each comprise sending the notice message over the  
6       local area network to the IP address and port number.

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1   25. The method of claim 24, wherein:

2           the identification comprises an identifier of the subscription device; and  
3           the step of providing the first notice message and the step of providing the  
4       subsequent notice messages each comprise sending the notice message to a  
5       proxy server that may use the identifier for routing the notice message to the  
6       subscription device.

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